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| (21) International Application Number: PCT/GB00/00322 (22) International Filing Date: 7 February 2000 (07.02.00) (30) Priority Data: 9902479.6 5 February 1999 (05.02.99) GB (71) Applicant (for all designated States except US): THE UNIVERSITY COURT OF THE UNIVERSITY OF GLASGOW [GB/GB]; University Avenue, Glasgow G12 8QQ (GB). (72) Inventors; and (75) Inventors/Applicants (for US only): DA SILVA MARQUES, Paulo, Vicente [PT/PT]; Rua da Vitoria, 405, P-4050 Porto (PT). BONAR, James, Ronald [GB/GB]; 47 Brodie Park Avenue, Paisley PA2 6JA (GB). AITCHISON, James, Stewart [GB/GB]; 127 Downhill Street, Glasgow G12 9DN (GB). (74) Agent: MURGITROYD & COMPANY; 373 Scotland Street, Glasgow G5 8QA (GB). | | (81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> |

(54) Title: WAVEGUIDE FOR AN OPTICAL CIRCUIT AND METHOD OF FABRICATION THEREOF

(57) Abstract

A waveguide for an optical circuit comprises a substrate; a buffer layer formed on the substrate; a doped lower cladding layer formed on the buffer layer; a doped waveguide core formed on the lower cladding layer; and a doped upper cladding layer embedding the waveguide core. The waveguide core includes mobile dopant ions which have diffused into the upper cladding layer and the lower cladding layer to form an ion diffusion region around said waveguide core such that the waveguide core boundary walls are substantially smooth. A waveguide core may be formed which is substantially symmetric about its core axis. Methods of fabricating the waveguide are also described.

